WHAT IS CLAIMED IS:

1. A polarizing device for a permanent magnet rotor comprising:

a polarizing iron core arranged facing to a specified number of permanent magnets among a plurality of unmagnetized permanent magnets arranged at specified intervals in the circumferential direction on a peripheral surface of a rotor;

a first coil wound at a position facing to a desired one of the permanent magnets of the polarizing iron core;

a pair of second coils each of which is arranged having a specified interval on the basis of the first coil in the circumferential direction on the polarizing iron core and whose direction of flow of current is different from that of the first coil; and a power source for supplying the current to the first and second coils;

wherein one of the permanent magnet and first coil is relatively moved and each of the permanent magnets is magnetized to form a magnetic pole in turn by the current fed from the power source.

2. The polarizing device for a permanent magnet rotor according to claim 1, wherein the second coils are arranged having an interval corresponding to at least three permanent magnets with the second coil, respectively.

3. The polarizing device for a permanent magnet rotor according to claim 1, wherein the second coils are wound in

the direction different from that of the first coil.

4. The polarizing device for a permanent magnet rotor according to claim 3, wherein the second coils are wound by a number of windings of half the number of windings of the first coil or less.

5. The polarizing device for a permanent magnet rotor according to claim 1, wherein a notch part for expanding the clearance with the permanent magnet is formed near both sides of the first coil of the polarizing iron core.

6. The polarizing device for a permanent magnet rotor according to claim 1, wherein the permanent magnet is relatively moved by rotating the rotor.